

Docket No. 2003-053-TAP

**CLAIMS:**

What is claimed is:

- 1 1. A tape library storage system, comprising:  
2 at least one tape drive tray;  
3 an intelligence module within the at least one tape  
4 drive tray, said intelligence module having electronics  
5 to control and monitor tape drive tray functions in the  
6 storage library; and  
7 a main library controller interfaced to the  
8 intelligence module, wherein the intelligence module  
9 sends tape drive tray function data to the main library  
10 controller.
- 1 2. The system in claim 1, wherein the intelligence  
2 module interface includes a tape transport interface  
3 port.
- 1 3. The system in claim 1, wherein the tape drive tray  
2 function data is sent via a wireless connection.
- 1 4. The system in claim 3, wherein the wireless  
2 connection includes at least one of a radio frequency or  
3 infrared transmission.
- 1 5. The system in claim 1, wherein the main library  
2 controller transmits commands to be performed on the tape  
3 drive tray by the intelligence module.

Docket No. 2003-053-TAP

1 6. The system in claim 5, wherein positive or negative  
2 acknowledgment of the commands is sent back to the main  
3 library controller after the commands are received by the  
4 intelligence module.

1 7. The system in claim 5, wherein the main library  
2 controller transmits the command to the intelligence  
3 module in a serial format.

1 8. The system in claim 7, wherein the intelligence  
2 module decodes the serially formatted command into  
3 discrete signals corresponding to a specific tape drive  
4 tray interface.

1 9. The system in claim 1, wherein the tape drive tray  
2 includes at least one of a tape drive, a power supply, a  
3 fan, a temperature sensor, and a fault indicator light,  
4 each interfaced to the intelligence module.

1 10. The system in claim 1, wherein the intelligence  
2 module sends tape drive tray function information to the  
3 main library controller in a serial format.

1 11. The system in claim 1, wherein the tape drive tray  
2 function data is gathered by periodically sampling status  
3 signals from the tape drive tray.

1 12. A method of transmitting data between a tape drive  
2 tray and a main library controller, comprising:

Docket No. 2003-053-TAP

3       controlling and monitoring tape drive tray functions  
4    using an intelligence module within the tape drive tray;  
5    and

6       sending tape drive tray function data to a main  
7    library controller interfaced to the intelligence module,  
8    wherein the intelligence module sends the data to the  
9    main library controller.

1    13.   The method in claim 12, wherein the intelligence  
2    module interface includes a serial interface to a tape  
3    drive.

1    14.   The system in claim 12, wherein the tape drive tray  
2    function data is sent via a wireless connection.

1    15.   The system in claim 14, wherein the wireless  
2    connection includes at least one of a radio frequency or  
3    infrared transmission.

1    16.   The method in claim 12, wherein the main library  
2    controller transmits commands to be performed on the tape  
3    drive tray by the intelligence module.

1    17.   The method in claim 16, wherein positive or negative  
2    acknowledgment of the commands is sent back to the main  
3    library controller after the commands are received by the  
4    intelligence module.

Docket No. 2003-053-TAP

1 18. The method in claim 16, wherein the main library  
2 controller transmits the command to the intelligence  
3 module in a serial format.

1 19. The method in claim 18, wherein the intelligence  
2 module decodes the serially formatted command into  
3 discrete signals corresponding to a specific tape drive  
4 tray interface.

1 20. The method in claim 12, wherein the tape drive tray  
2 includes at least one of a tape drive, a power supply, a  
3 fan, a temperature sensor, and a fault indicator light,  
4 each interfaced to the intelligence module.

1 21. The method in claim 12, wherein the intelligence  
2 module sends tape drive tray function information to the  
3 main library controller in a serial format.

1 22. The method in claim 12, wherein the tape drive tray  
2 function data is gathered by periodically sampling status  
3 signals from the tape drive tray.

1 23. A method of transmitting data from a tape drive tray  
2 to a main library controller, wherein the data to be  
3 transmitted is gathered by an intelligence module within  
4 the tape drive tray, comprising:  
5       periodically sampling status information generated  
6 from devices within the tape drive tray; and  
7       sending the status information to main library  
8 controller in a serial format.

Docket No. 2003-053-TAP

1 24. The method in claim 23, wherein the devices  
2 generating status information include at least one of a  
3 tape drive, a power supply, a fan, a temperature sensor,  
4 and a fault indicator light.

1 25. A method of controlling devices located within a  
2 tape drive tray, comprising:  
3 transmitting control data to the tape drive tray in  
4 a serial format;  
5 receiving the control data at the tape drive tray,  
6 wherein an intelligence module within the tape drive tray  
7 decodes the control data; and  
8 using the intelligence module to drive discrete  
9 signal lines to a state as specified in the control data.